In the Claims

Please substitute the following amended claims for those currently pending:

1.   (Currently amended) A vehicle comprising:

an engine having a throttle;

a CVT operatively coupled to the engine wherein the transmission has a continuous ratio range;

an engine braking assist selector which may be activated by an operator of the vehicle; and

a controller operatively coupled to the CVT and engine braking assist selector, the controller programmed with an engine braking algorithm wherein the controller implements the algorithm if the engine braking assist selector is activated and outputs a control to the CVT to alter the ratio of the CVT to produce engine braking in an amount selected by the engine braking assist selector, the engine braking algorithm being adapted to increase engine speed in proportion to an amount by which the throttle is positioned below a predetermined setting.

2.   (Currently amended) The vehicle according to claim 1 wherein the engine braking assist selector has multiple settings that the operator of the vehicle may select from to control the amount of engine braking provided, each of the multiple settings corresponding to a bias ratio, and wherein the engine braking algorithm is further adapted to increase engine speed by an amount proportional to the bias ratio.

3.   (Original)   The vehicle according to claim 1 wherein the engine braking assist selector comprises a multi-position switch.

4.   (Original)   The vehicle according to claim 3 wherein the multi-position switch is located on a handlebar of the vehicle.

5.   (Original)   The vehicle according to claim 1 wherein the engine braking assist selector comprises a user selectable menu on an instrument panel of the vehicle.

6.   (Currently amended)   ~~The vehicle according to claim 1~~

A vehicle comprising:

an engine;

a CVT operatively coupled to the engine wherein the transmission has a continuous ratio range;

an engine braking assist selector which may be activated by an operator of the vehicle; and

a controller operatively coupled to the CVT and engine braking assist selector, the controller programmed with an engine braking algorithm wherein the controller implements the algorithm if the engine braking assist selector is activated and outputs a control to the CVT to alter the ratio of the CVT to produce engine braking in an amount selected by the engine braking assist selector, wherein the engine braking algorithm is defined by the equation,

$X = ((\text{cut-in \%}) - \text{throttle position}) \times \text{bias ratio} + C,$

where X is the increase in engine speed value as a percentage over normal operation, throttle position is measured as a percentage of throttle open position and C is a constant, where negative values of X are ignored.

7.   (Original)   The vehicle according to claim 1 wherein the CVT is a rubber belt-driven CVT.

8.   (Original)   The vehicle according to claim 1 wherein the CVT is a steel belt-driven CVT.

9.   (Original)   The vehicle according to claim 1 wherein the CVT is hydrostatic.

10.   (Currently amended) An interface for rider selectable engine braking assist in a toroidal CVT, the interface comprising:

an engine braking assist selector; and

a controller receiving inputs from a throttle position sensor and an engine braking assist selector wherein if the throttle position sensor is above a predetermined reading, no engine braking is implemented but if the throttle position sensor is below the predetermined reading, an engine braking algorithm is implemented by the controller wherein the amount of engine braking is proportional to the difference between the predetermined reading and the throttle position sensor dependent upon the output of the throttle position sensor and the output of the engine braking assist selector.

11.   (Original)   The vehicle according to claim 9 wherein the engine braking assist selector has multiple settings that the operator of the vehicle may select from to control the amount of engine braking provided.

12.   (Currently amended) The vehicle according to claim 10 wherein the engine braking assist selector comprises a multi-position switch, and wherein the amount of engine braking is further proportional to an output provided by the multi-position switch.

13.   (Original)   The vehicle according to claim 12 wherein the multi-position switch is located on a handlebar of the vehicle.

14.   (Original)   The vehicle according to claim 10 wherein the engine braking assist selector comprises a user selectable menu on an instrument panel of the vehicle.

15.   (Currently amended) ~~The vehicle according to claim 10~~ An interface for rider selectable engine braking assist in a toroidal CVT, the interface comprising:

an engine braking assist selector; and

a controller receiving inputs from a throttle position sensor and an engine braking assist selector wherein if the throttle position sensor is above a predetermined reading, no engine braking is implemented but if the throttle position sensor is below the predetermined reading, an engine braking algorithm is implemented by the controller wherein the amount of engine braking is dependent upon the output of the throttle position sensor and the output of the engine braking assist selector, wherein the engine braking algorithm is defined by the equation,

$$X = ((\text{cut-in \%}) - \text{throttle position}) \times \text{bias ratio} + C$$

where X is the increase in engine speed value as a percentage over normal operation, throttle position is measured as a percentage of throttle open position and C is a constant where negative values of X are ignored.

16. (Original)   A continuously variable transmission (CVT) system comprising:

a rotatable input shaft coupled to an engine of a vehicle;

a rotatable drive clutch coupled to the input shaft, the drive clutch having

a laterally stationary sheave with an inner belt engaging surface,

a laterally moveable sheave with an inner belt engaging surface,

means for normally biasing the moveable sheave away from the stationary sheave and for selectively moving the moveable sheave toward the stationary sheave in response to rotation of the drive clutch;

a rotatble output shaft coupled to a drive axle of the vehicle;

a rotatable driven clutch coupled to the output shaft, the driven clutch having

a laterally stationary sheave with an inner belt engaging surface;

a laterally moveable sheave with an inner belt-engaging surface, and

means for normally biasing the moveable sheave toward the stationary sheave; and

an endless drive belt disposed about the drive and driven clutches, the belt having a pair of side drive surfaces engage able against the inner belt-engaging surfaces of the sheaves;

an engine braking assist selector; and

a controller programmed with an engine braking algorithm wherein when engine braking assist is requested, the controller will implement the algorithm and output a control to the CVT to alter the ratio of the CVT to produce engine braking in an amount selected by the selector.

17.   (Original)   The vehicle according to claim 16 wherein the drive belt is a rubber drive belt.

18.   (Original)   The vehicle according to claim 16 wherein the drive belt is a steel drive belt.

19.   (Original)   The vehicle according to claim 16 wherein the engine braking assist selector has multiple settings that the operator of the vehicle may select from to control the amount of engine braking provided.

20.   (Original)   The vehicle according to claim 16 wherein the engine braking assist selector comprises a multi-position switch.

21.   (Original)   The vehicle according to claim 20 wherein the multi-position switch is located on a handlebar of the vehicle.

22.   (Original)   The vehicle according to claim 16 wherein the engine braking assist selector is a user selectable menu on an instrument panel of the vehicle.

23.   (Original)   The vehicle according to claim 16 wherein the engine braking algorithm is defined by the equation,

x = ((cut-in %) – throttle position) x bias ratio + C,

where x is the increase in engine speed value as a percentage over normal operation, throttle position is measured as a percentage of throttle open position and C is a constant, where negative values of X are ignored.

24.   (Original)   A toroidal CVT comprising:

a rotatable input shaft coupled to an engine of a vehicle;

a rotatable input disc coupled to the input shaft,

a rotatable output shaft coupled to a drive axle of the vehicle;

a rotatable output disc coupled to the output shaft,

at least a pair of power rollers, each power roller having a spherical convex surface, wherein each power roller is located between the input and output discs so that the convex peripheral surface of each power roller abuts an inner surface of the input and output discs,

a displacement shaft coupled to each power roller wherein; the displacement shafts pivot each power roller so that the convex peripheral surface of each power roller may abut various points on the inner surface of the input and output discs ranging from a maximum reduction condition in which the convex peripheral surfaces abut the inner surface of the input disc at an innermost edge thereof and against the inner surface of the output disc at an outermost edge thereof to a minimum reduction condition in which the convex peripheral surfaces abut the inner surface of the input disc at an outermost edge thereof and against the inner surface of the output disc at an innermost edge thereof;

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an engine braking assist selector; and

a controller programmed with an engine braking algorithm wherein when engine braking assist is requested, the controller will implement the algorithm and output a control to the CVT to alter the ratio of the CVT to produce engine braking in an amount selected by the selector.

25.   (Original)   The vehicle according to claim 24 wherein the engine braking assist selector has multiple settings that the operator of the vehicle may select from to control the amount of engine braking provided.

26.   (Original)   The vehicle according to claim 24 wherein the engine braking assist selector comprises a multi-position switch.

27.   (Original)   The vehicle according to claim 26 wherein the multi-position switch is located on a handlebar of the vehicle.

28.   (Original)   The vehicle according to claim 24 wherein the engine braking assist selector is a user selectable menu on an instrument panel of the vehicle.